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Director

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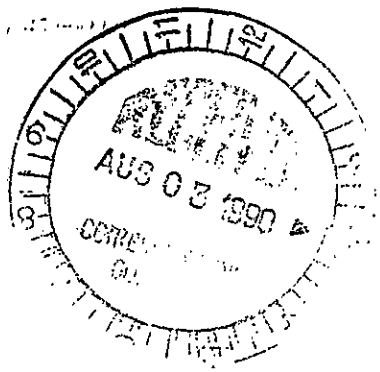
STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

July 25, 1990




Mr. J. D. Goodenough
Operable Unit Manager
U.S. Department of Energy
P.O. Box 550
Richland, Washington 99352

**RE: Response on Disposition of Comments on the 100-DR-1 Operable Unit Work Plan**

Dear Mr. Goodenough:

Enclosed are responses to the Disposition of Comments on the 100-DR-1 Operable Unit Work Plan received by the Department of Ecology. These responses are submitted in order to enable USDOE to prepare for a meeting on final resolution of outstanding issues planned for July 31 in Richland. If possible, we would appreciate knowing beforehand which of these responses may require additional time to discuss. This will allow for a more focused and productive meeting.

Unless otherwise indicated by the following responses, the proposed disposition of comments on this work plan is accepted pending review of the revised language. Ecology and its prime contractor, Brown and Caldwell Consultants, look forward to this meeting and the review of the final draft work plan for this operable unit.

Please contact me at your earliest convenience with any questions or comments. I can be reached at (206) 438-7018.

Sincerely,

Larry Goldstein
CERCLA Unit Supervisor
Hanford Project

LG:lg
Enclosure

cc: Tim Nord, Ecology
Gary Rothwell, Ecology
Steve Wisness, USDOE
Doug Sherwood, EPA
Linda Powers, WHC


## SECTION 1.0 INTRODUCTION

Comment 1.2 Section 1.0, 1st Paragraph, Page WP-1

The response to this comment is that the requested information will be presented in the 100-HR-3 Work Plan. This information should be included in this 100-DR-1 Work Plan as well, although in a summary format.

The work plans should be separate stand-alone documents, at least to the extent each provides a basic understanding of source and ground water operable unit characterization, investigation, potential remediation and schedules; how they are related; and how they will be coordinated. This requirement has been consistently stressed by Ecology, and agreed to by USDOE as evidenced in the proposed integration of the 100-HR-3 and 100-HR-1 Operable Unit Work Plans.

Comment 1.6 Section 1.1, Page WP-3

We agree that Hanford Federal Facility Agreement and Consent Order recognizes that the facilities within the reactor decommissioning program are excluded from the present study, and are covered in the Decontamination and Decommissioning Program (D&D). This should not, however, preclude critical information necessary to understand all sources of potential contamination within the operable unit from being included in the work plan.

It is unreasonable and inefficient, for example, to expect a reader of this work plan to comb through the D&D EIS to find information necessary to understand how D-reactor operations may have affected the 100-DR-1 Operable Unit. In other words, the information which should be included in the 100-DR-1 Work Plan are those that will help explain potential contamination of soil or groundwater, and which are directly a part of the present effort.

Comment 1.7 Section 1.3, 2nd Paragraph, Page WP-7

It has been recognized by the parties that we are working in a dynamic environment which involves changing policy and technical guidance. Prior decisions concerning the applicability of NEPA to Hanford compliance and cleanup activities were in the context of great uncertainty due in large part, to USDOE and EPA pending interpretations of NEPA applicability at federal facilities. How NEPA (and SEPA) will be applied is still the subject of much thought. However, it is apparent in recent presentations by USDOE to Ecology and EPA that NEPA will apply. The work plan must reflect this important fact, and should at least summarize what NEPA is and how it may affect implementation of the work plan.

## SECTION 2.0 OPERABLE UNIT BACKGROUND AND SETTING

Comment 2.5 Section 2.1.2, Page WP-11

The response is considered partially adequate as it provides for incorporating new information. There is a fundamental need to understand the processes in order to determine if proposed investigations are adequate. Thus, it is necessary to define the waste products as extensively as possible. Additional data is useful for purposes of understanding by both the educated lay public as well as by the regulatory agencies in terms of organic, inorganic and radiological contamination.

If needed information is in fact unavailable, that is an understandable limitation, but one which is not mentioned here and elsewhere in Section 2.1. Lacking is a unit-by-unit description of data limitations, what needs to be known in order to effectively characterize the operable unit, and how the data gaps will be filled.

Comment 2.9 Section 2.1.3.1, Page WP-14

This section should be expanded to the extent possible. The information appears to be available but needs to be assembled better. The flow diagram in question, Figure 2, has been assembled solely on the basis of information provided in the text of the Work Plan.

Comment 2.11 Section 2.1.3.1.1, 2.1.3.1.2, 2.1.3.1.3, Page WP-19

The response that the overall waste disposal processes are described, but not for individual facilities, is inadequate. A waste discharge inventory for the retention basins, percolation trenches and percolation cribs are not described in the text of the above sections, and should be provided to the extent possible, either in Section 2.1.3 or Section 2.1.4.

Comment 2.12 Section 2.1.3.1.1, Page WP-19

In accordance with the general comment on data availability found in Section 2.5, there should be a commitment in the Work Plan to compile additional data on the retention times of reactor once-through cooling water.

Comment 2.18 Section 2.1.3.3, Page WP-19

Provisional acceptance of this disposition, pending review of the final draft of the work plan. It would certainly be helpful to have a process flow diagram of radioactive solid waste streams. Even estimates of solid waste materials generated would be helpful for the educated public and regulatory agencies to assess the identification of potential problems.

Comment 2.19 Section 2.1.3.5, Page WP-20

Provisional acceptance of this disposition, pending review of the final draft of the work plan. The response that the requested information is not available but that some information on fly ash and bottom ash disposal is presented in Section 3.0 is puzzling. In checking this Section, neither quantities nor compositions of ash residuals, nor points of origin of coal shipments are presented. It is important to obtain such information as it might affect the potential contamination in the area, and to make allowances for it in the sampling plan.

Comment 2.20 Section 2.1.3.6, Page WP-20

The response that the specific requested information is not available is inadequate. There is no acknowledgment in the work plan of this deficiency, nor a commitment to obtain this information. Such information would be very helpful in defining Phase II RFI activities.

A partial list or a reference to the previous Figure 2 of this text as being correct and/or incorrect would be helpful. Any information which could be generated as the result of further investigations would also be helpful, especially as it might affect present or future sampling.

Comment 2.21 Section 2.1.3.7, Page WP-20

The response that the specific requested information is not available is inadequate. There is no acknowledgment in the work plan of this deficiency, nor a commitment to obtain this information. Such information would be very helpful in defining Phase II RFI activities.

Comment 2.23 Section 2.1.4, Page WP-21

Partial acceptance of the disposition of this comment. The work plan should identify data gaps and include a commitment made to obtain the necessary data. It is less than clear from the response that waste storage volumes and inventories have, or will be requested. Clearance problems will have to be documented, including specific justification for these concerns, and a timeframe for de-classifying this information.

Comment 2.25 Section 2.1.4.1.2, Page WP-23

As previously stated in Comment 1.6, we agree that the facilities within the reactor decommissioning program are excluded from the present study, and are covered in the Decontamination and Decommissioning Program (D&D). This should not, however, preclude

critical information necessary to understand all sources of potential contamination within the operable unit from being included in the work plan. This is particularly true given that the final Defense Reactor D&D EIS has not been approved by USDOE nor released to the public.

The requested information can be summarized and should be included in the work plan to the extent that it facilitates the objectives of the RFI and the sampling and analysis plan.

Comment 2.27 Section 2.1.4, Table 1, WP-26

This is a good definition. It is not clear from the disposition, but we assume "editorial action" means the new text will be added to the work plan.

Comment 2.29 Section 2.1.4.3, 4th Paragraph, Page WP-34

Please reference (the new) Figure 5. in this section.

Comment 2.31 Section 2.1.4.3.1, 6th Paragraph, Page WP-35

This information should be gathered during the Phase I RFI, regardless if it is available in existing documentation.

Comment 2.34 Section 2.1.4.4.6, Page WP-38

The response that the specific requested information is not available is inadequate. There is no acknowledgment in the work plan of this deficiency, nor a commitment to obtain this information. Such information would be very helpful in defining Phase II RFI activities.

Comment 2.37 Section 2.1.4.7, 1st Paragraph, Page WP-39

Any information regarding coal or ash composition as it might affect contamination levels in the ash disposal pit locations should be presented. A commitment to obtain additional information should be included in the work plan.

Comment 2.40 Section 2.1.4.7, Page WP-39

The discrepancy noted in the original comment should be corrected, or at least explained such that the reader understands why this discrepancy has not be corrected.

Comment 2.41 Section 2.1.4.9.1, Page WP-41

The disposition is unacceptable. It is important to know not only under what authority underground storage tank removal has occurred, but specifically how the UST program is being coordinated with the RFI/CMS and RI/FS activities at Hanford. Describe the rationale for continuing the UST program in light of ongoing and planned past practice activities.

There must be straightforward text that describes how data gathered during UST program activities will compliment action taken under past practice authorities at Hanford. In addition, there should be language assuring the regulatory agencies that any action taken under the tank program will not conflict with CERCLA requirements, particularly with respect to characterization and remedial actions.

Comment 2.42 Section 2.1.4.9.3, Page WP-41

See response to Comment 2.41.

The disposition of comments 2.41 and 2.42 suggest the 130-D-1 fuel storage tank was removed under the auspices of the UST program, but that the fuel oil tank associated with the 184-DA steam generating building will be treated under the authority of this RFI. Please explain the apparent conflict.

Comment 2.47 Section 2.2.1, 2nd Paragraph, Page WP-43

This comment was misinterpreted. The text as written is confusing in that it should state what the elevation of the operable unit is relative to the Columbia River, the nearest water body that may affect the operable unit. It appears this figure is approximately 76 feet. Is this correct?

Comment 2.54 Section 2.2.2.2, Page WP-46

We disagree with the assumption that the depositional history of the site is necessarily the same. For example, subunits can be missing in certain areas of the Hanford Site depending on slack water conditions. Slack water conditions present at some particular time would determine the amount of clay and silt present, and likewise could determine whether the lower Ringold unit is present at a given locality. The lithology essentially defines that unit as it does for the other subunits.

Comment 2.61(A) Section 2.2.3.1, Figure 9, Page WP-50

While it may be true Figure 9 is based on actual well data from the 100-H Area, extrapolating this information to the 100-D Area remains conceptual, and should be clearly stated.

Comment 2.61(B) Section 2.2.3.1.5, second paragraph, Page WP-51

Please incorporate the definition of "matric potential" into the text. The question concerning drainage direction is posed due to the qualifier in the text that, "water in the deeper sediments is slowly draining to the water table." As noted in the previous paragraph, deeper sediments contain a higher percentage of silts, suggesting possible lateral movement of water, in addition to the obvious vertical movement.

Comment 2.63 Section 2.2.3.2, Page WP-52

Consistent with the goals of integrating ground water and source operable unit work plans, the potentiometric information requested should also be included in the 100-DR-1 Work Plan. At a minimum, there should be a specific cross-reference in this work plan for where the information can be found in the 100-HR-3 Work Plan.

Comment 2.66 Section 2.2.4.1, Page WP-54

The disposition statement says that stormwater runoff information will be collected during Phase I of the RFI, which is satisfactory. However, this intention is not apparent in the existing text. Specific references to other text in the work plan regarding this activity should be provided. This supporting information should include a general description (or references) of the types of information that will be collected (including data from both pervious and impervious surfaces), when data collection will occur, and how the data will be used.

Comment 2.71 Section 2.2.6.1, Page WP-57

Concern still exists as to whether a reasonable assessment of the botanical resources which characterize the 100-DR-1 site will be presented. Information collected at the 100-HR-3 site may well describe riparian vegetation at the 100-DR-1 site, but this cannot be confirmed without field verification. It is not clear whether upland plant communities will be qualitatively surveyed, or whether surveys will be conducted for rare plants which may occur on the site. In summary, a commitment for gathering specific information is needed for this section to be approved.

Comment 2.72 Section 2.2.6.2, Pages WP-57 to WP-59

The disposition of this comment is unacceptable. Concern still exists as to whether wildlife resources which occur on the project site will be reasonably described.

A clear understanding of existing wildlife use of the site is imperative to establish feeding relationships, determine habitat use patterns, and identify other ecological relationships

necessary to adequately describe and assess biocontamination transport pathways.

Responses to Ecology comments are generic, and no resolution of confirmed data gaps was proposed. The RFI/CMS study task description for terrestrial resources implies that additional information may be collected which would be applicable. In addition, the response to Comment 4.16 indicates that some level of on-site biological survey would be conducted. It is recommended that, at minimum, qualitative surveys of the site be undertaken to resolve pertinent data gaps. These surveys must be described in the text.

Comment 2.74 Section 2.2.6.3, Page WP-60

No authority or adequate explanation is given for the assertion that animal habitat cannot be "critical" if the animals that use the habitat are "transient". If this assertion cannot be verified, then the first paragraph of this section should be deleted.

Reliance on Section 2.2.6.2 is not appropriate in this context, because that section addresses species, whereas 2.2.6.3 addresses critical habitat. The significance of the two sections is different.

Comment 2.75 Section 2.2.6.4, 1st Paragraph, Page WP-60

Given the expressed interest by local government and the public in long term land use at the Hanford Site; the fact that USDOE has examined this critical issue; and that formal presentations to Ecology, EPA and the public have been made, the argument that defining the "foreseeable future" is "speculative" is unjustified and not accepted.

The assumption presented in the work plan that for reasons of "national security ...public health and safety, access to the entire Hanford Site (will be) administratively controlled" is unwarranted. In summary, this section must be significantly updated and expanded.

Define "foreseeable future" or delete the term. Present a discussion on potential land uses that acknowledges various scenarios and time frames. Describe how statutory and regulatory requirements, Hanford aggregate area considerations, technical feasibilities, and the public will all be factors in determining final land uses at Hanford.

Comment 2.76 Section 2.2.6.4, Pages WP-60 and WP-61

This is a good response but an unacceptable disposition. The work plan should be written to minimize misinterpretations. If the

reviewers misinterpret a statement, then it needs to be clarified. Modify the text accordingly.

Comment 2.80 Section 2.2.6.5, Page WP-61

Partial acceptance. A discussion on potential future water use, particularly as it relates to the general subject of land use, is warranted. The final cleanup of the DR-1 Operable Unit most certainly will affect potential beneficial uses of land and water resources, and vice versa. This should be discussed.

Comment 2.81 Section 2.2.6.6, Page WP-61

Clarification is needed given that the DR-1 Operable Unit is considered a "sensitive environment" as defined in 40 CFR 300, Appendix A. A clarification between the definition of "roosting" (resting) areas and foraging areas would help.

However, authorities and definitions aside, there is an obvious potential for habitat adjacent to the 100-DR-1 Operable Unit being disturbed by activities within or adjacent to the unit. Habitat of concern in the vicinity of the unit will need to be identified and given adequate protection during remediation.

## SECTION 3.0 INITIAL EVALUATION

Comment 3.3 Section 3.1, Page WP-63

Partial acceptance. There is little acknowledgment in this section, nor Section 2.0 of the work plan (as noted above numerous times), of the data deficiencies noted, nor a clear commitment to obtain needed information. The parties obviously agree that additional data will be required for all contaminants of concern, including organic and inorganic constituents. What is required is an explicit commitment to assure the reader these data will be collected and analyzed on a unit-by-unit basis, and on an aggregate basis.

Finding these assurances should not have to be a "treasure hunt" ranging from the initial operable unit descriptions in Section 2.0, through the initial evaluations in Section 3.0, and into the SAP and FSP. Such exclusions undermines needed confidence that this work plan will lead to an efficient and comprehensive characterization of the operable unit.

Comment 3.4 Section 3.1.1, Page WP-63

Some of the requested data is indeed included in Section 2.0, but some is not present and needs to be recognized and incorporated into the text. Following (on the next page) is a table listing the units with missing radiological data. This list should not be construed as inclusive of data needs throughout the unit.

Comment 3.5 Section 3.1.1.1.1, Table 3, Pages WP-63 and WP-63

See Comments 1.6 and 2.25 for similar responses that address the proposed disposition of this comment. Providing the additional information suggested should not require a great deal of time or effort, and would enhance this work plan.

Comment 3.6 Section 3.1.1.1.1, Page WP-63

See Comment 1.6 for similar responses that address this issue. NEPA must be explained.

Comment 3.9 Section 3.1.1.1.2, Page WP-63

We disagree that the information requested would be misleading. Providing information on existing contamination will certainly help in understanding the scope of problems associated with the trenches. It will also serve to provide a needed justification for the proposed sampling and analyses of the trenches. Lastly, the data can be qualified as necessary to minimize chances of misinterpretation.

DOCUMENTATION OF KNOWN AND SUSPECTED
CONTAMINATION AT THE 100-DR-1 OPERABLE UNIT

| Building or Facility | Radioactivity Present (Curies (Ci) | Total Solids Accumulation Kilograms (Kg) |
|---|---|---|
| 100-D Reactor Building | 21,252.4 (See table 3) | Not listed |
| Fuel Storage Basin Trenches | 3.1+1.5=.6 (See tables 4 & 5) | 5,700 |
| Pluto Crib (116-D-2) | Not listed | 0.004 (Incomplete) |
| French Drain | Not listed | Not listed |
| Process Effluent Pipelines | Not listed | Not listed |
| Process Effluent Retention Basins | (See tables 6, 7, 8 and 9) | |
| 116-D-7 | 75+4=79.0 | 1.2M+18.0M=19.2M M=Million |
| 116-DR-9 | 48+7=55.0 | 1.9433.0M=34.8M M=Million |
| Inlet Distribution | 2.8 | 11,000 |
| Liquid Waste Disposal Trenches | | |
| 116-DR-1 (See Table 11) | 21.6 | 40 |
| 116-DR-2 | Not listed | Not listed |
| Sludge Disposal Trenches | Not listed | Not listed |
| Outfall Structures | Not listed | Not listed |
| Discharge Pipelines | Not listed | Not listed |

Comment 3.10 Section 3.1.1.2, 1st Paragraph, Page WP-66

See response to Comment 3.3 for similar concerns related to the proposed disposition of this comment. These concerns could be addressed with a specific reference on how the assumptions cited by Owen (1967) and the authors of the work plan will be tested. Reference to the appropriate section in the Field Sampling Plan that describes related activities is obviously warranted.

Comment 3.17 Section 3.1.1.3, Pages WP-63 to WP-73

Explain in this section why there is no comprehensive list of radioactivity levels present at the respective waste disposal facilities, and where in Section 5 these data deficiencies are addressed.

Comment 3.18 Section 3.1.1.3, 3.1.1.4, Pages WP-63 to WP-73

We disagree that the information requested would be misleading. Data can be qualified as necessary to minimize misinterpretation.

Explain why the available information should not be collected and assembled to the extent possible. Nitric acid in particular was mentioned in the original comment but was not addressed in the response. Explain why Table 10 presented in our original comments could not be expanded and used to provide some insight, albeit provisional, on the nature and magnitude of the problems associated with inorganic waste disposal.

The available information should be collected and assembled to the extent possible, with a reference of where to find additional information in the work plan that describes in a straightforward manner how data gaps will be filled.

Comment 3.26 Section 3.1.1.5.1, Page WP-76

Unacceptable disposition. If no additional information is available, then explain this in the text, and provide a reference in the work plan that describes how additional data will be gathered.

Comment 3.32 Section 3.1.1.10.2, Page WP-79

This response is acceptable, with the qualification that coal ash detected in the area during the sampling and analysis phase will be measured and documented in terms of its composition.

Comment 3.34 Section 3.1.1.11, Page WP-80

Partial acceptance. The explanation provided should be incorporated into the work plan. It is apparent that at least a half-dozen organizations or programs are involved in environmental restoration of electrical transmission facilities. Please provide further explanation of how these organization are coordinating their efforts. A detailed description is not necessarily warranted in this section of the work plan, but should be summarized elsewhere.

Comment 3.41 Section 3.1.4, Page WP-88

The response to this comment that the requested information will be presented in the 100-HR-3 Work Plan is not acceptable. This information should be included in this 100-DR-1 Work Plan as well, although in a summary format.

The work plans should be separate stand-alone documents, at least to the extent each provides a basic understanding of source and ground water operable unit characterization, investigation, potential remediation and schedules; how they are related; and how they will be coordinated. This requirement has been consistently stressed by Ecology, and agreed to by USDOE as evidenced in the proposed integration of the 100-HR-3 and 100-HR-1 Operable Unit Work Plans.

Comment 3.50 Section 3.2, Figure 15, Page WP-95

Figure 15 will have to be redrawn. The map does not communicate the information for which it is intended.

Comment 3.53 Section 3.2.1, Page WP-97

The Health and Safety Plan relates to on-site workers. The concern expressed in the comment relates to emissions that may affect the public. These emissions are covered under federal and state air standards, and are relevant ARARs.

Comment 3.54 Section 3.2.2, Page WP-97

Incorporate this information into the work plan.

Comment 3.56 Section 3.3, Pages WP-98 to WP-103

Disagree. The general conceptual description in the Work Plan of alternative exposure pathways appears to be incomplete and unclear. It is likely that Phase I of the RFI data collection efforts will be planned in response to this general, conceptual description of exposure pathways. Therefore, it is important to

carefully define the process by which the exposure pathways will be identified.

Comment 3.57 Section 3.3.1, Page WP-98

The response that no standards of performance and risk assessment models have been identified to date is inadequate. If no standard set of performance and risk models have been identified, it is necessary to describe how such models will be identified, and subjected to peer review prior to approval. We recommend that specific information be provided in this section, e.g. "calibrated performance assessment models will be subjected to peer review and analyses at Oak Ridge National Laboratory."

Comment 3.58 Section 3.3.1, Page WP-98

The information provided in the response is helpful and should be incorporated into the work plan. The response still needs to address the applicability of the risk assessment model to the Site, especially since no definitive performance standards or assessment models have been identified.

There are many unanswered questions regarding the conceptual model. For example, how might the information being gathered change the conceptual model? How will a pathway be determined viable?

Comment 3.63 Section 3.3.2, Page WP-101

The process to be utilized for defining criteria during the Phase I of the RFI should be clarified in the Work Plan.

Comment 3.72 Section 3.4, Page WP-106

Provide a summary description in the Work Plan of how the CMS will define the preferred alternative.

## SECTION 4.0 WORK PLAN RATIONALE

Comment 4.1 Section 4.1, Page WP-113

Partial acceptance. Although groundwater, surface water, sediment and aquatic biota data types are discussed in Section 4.1.2, the Data Quality Objectives (DQOs) for the 100-DR-1 Operable Unit are still not adequately addressed. It is recommended that these DQOs from the 100-HR-3 Work Plan be included in Table 30 of this work plan, with a specific reference to Section 4.1 in 100-HR-3 Work Plan for integration.

Comment 4.3 Section 4.1, Data Quality Objectives (DQOs), Page WP-113

This proposed disposition is not acceptable. It is essentially the same issue dealt with in Comment 4.1, and the disposition ignores the issue of Work Plan integration. A simple reference to the 100-HR-3 Work Plan is insufficient to meet the integration objectives for the site.

Comment 4.4 Section 4.1.2.4, Page WP-113

This proposed disposition is not acceptable because it overlooks two key factors:

1. The issue of Work Plan integration.

2. Site specific data requirements can exceed those listed in the EPA guidance document when needed to adequately evaluate a specific situation. The disposition implies that only data types listed in the EPA document need be addressed. This is not the case, since the document only sets minimum standards for typical sites. The specific data types listed in the comment are appropriate to the site.

Comment 4.7 Table 30, Page WP-115

One moisture-content measurement per boring is inadequate to calculate variations at specific points in the soil column. One soil-moisture profile of the entire column at representative locations within the operable unit will be required.

Comment 4.9 Section 4.1.1, Page WP-116

See response to disposition of Comments 4.1 and 4.3

Comment 4.10 Section 4.1.1.6, Page WP-118

The intent of this section is clear that data collected during the RFI should be used to measure the effectiveness of corrective actions. The perception that this is not a requirement is beside the point of carrying out an efficient program to evaluate the nature of an environmental problem and the efficacy of the selected remediation technique.

We recommend the first sentence of this section be changed to read, "The RFI/CMS data will be used to establish a pre-implementation baseline data set.

Comment 4.15 Section 4.1.3, Page WP-123 to WP-124

See response to disposition of Comment 4.10. In addition, the problem of reintroducing contaminants, including radionuclides, into the atmosphere during remedial work is an important risk factor which needs to be addressed.

Comment 5.5 Section 5.1.1, Page WP-131

It would be beneficial to provide a reference to the organization chart in Section 5.1.1 on Page WP-131.

Comment 5.7 Section 5.3, Page WP-133

This proposed disposition is generally acceptable. The intent of this comment was to draw attention to the lack of work plan integration between the source and groundwater units. While the groundwater investigation and field work may occur under the 100-HR-3 Work Plan, integration requires that the 100-DR-1 Work Plan discuss those activities in the appropriate sections.

The two Work Plans should discuss how source data which was developed during 100-DR-1 Work Plan implementation will be used to focus or redirect the 100-HR-3 work activities, and vice-versa. Each Work Plan should emphasize the integrated aspects of the source and groundwater studies.

Comment 5.11 Section 5.3.1.5, Page WP-137

The proposed disposition is not acceptable, and glosses over the intent of the review comment which is the use of ambiguous or undefined terms or phrases such as "relatively small facilities."

An acceptable disposition would be to define the term as anything smaller than 10,000 square feet, and then reference the reader to Section 2.5.2 of the field sampling plan (FSP) for further explanation. This approach would tie the work plan together as a unified document.

Comment 5.12 Section 5.3.1.6, Page WP-137

The proposed disposition is not acceptable, and does not seriously address the intent of the comment. The camera inspection procedure is not questioned here, nor is the expectation that soil contamination will be found near the site of major breaches. The comment states that significant leakage may also have occurred at sources such as pipe joints that appear to be sound.
Some method should be developed to investigate this possibility, or major areas of soil contamination may be overlooked. For example, a small number of pipe joints might be excavated for soil sampling and radiation analysis. There is no intent that the whole pipeline be excavated. The proposed disposition does not address the technical issues involved.

Comment 5.13 Section 5.3.1.7.1, Pages WP-139 to WP-140

The area of the wipe samples, themselves, is relevant. A sufficient number of samples should be taken to produce a statistically valid representation of the area of concern. As mentioned in the original comment it is important to sample a large percentage of the area to ensure an adequate level of confidence in the sampling plan, especially when the extent or nature of the contamination is unknown.

Comment 5.23 Section 5.3.8, Page WP-157

The proposed disposition is acceptable, pending review of the revised text. The text should describe in general terms how the various risk assessments are to be integrated.

Comment 5.25 Section 5.4.5, Page WP-162

Waste minimization, although not a primary remediation potential, may offer some beneficial use of site wastes. It should not be discounted until all of the remediation alternatives have been evaluated. The proposed disposition is acceptable.

Comment 5.26 Section 5.5.3, Page WP-166

This proposed disposition is partially acceptable in that the original work plan text is consistent with EPA guidance. This issue was not disputed.

However, there appears to be disagreement over the importance of stressing criteria priorities and the two-tiered approach to evaluating alternatives as are also required by EPA guidance. The existing text alone is too generic.Placing emphasis on the priority of criteria to be used in remedy selection is a logical, informative and focused approach that should be in the work plan. The original comment should be accepted.

## APPENDICES

**APPENDIX A: SAMPLING AND ANALYSIS PLAN/FIELD SAMPLING PLAN (SAP/FSP)**

Comment SAP.1 General Comment

The proposed changes are acceptable if it is explained in the Introduction of the intent of the Sampling and Analysis Plan. The purpose and course of action need to be defined in the Introduction to the plan.

Comment SAP.3 General Comment

The proposed drilling scheme, three samples will be collected at the base plus 5 feet and 10 feet below the base, needs to be more clearly defined in the text and Table 5 of the Work Plan.

Comment SAP.5 General Comment

The response is that the respective tasks will be explained in greater detail than presently exists is accepted. In addition, the sections which are referenced need to be placed within the text.

Also, brief descriptions of sample protocols need to be provided where applicable. Sufficient material needs to be placed within the text to allow for technical judgments to be made on their credibility.

Comment SAP.6 General Comment

A more detailed description of how subcontractors will be employed to prepare the planning documents and quality assurance/quality control (QA/QC) procedures and provide laboratory oversight would be beneficial to the overall process to fully address the potential conflict-of-interest issue.
Experience has shown that work may not be carried out according to plan, and administrative audits are sometimes inadequate to uncover problems.

We strongly recommend providing as much information as possible, e.g. subcontractors, laboratories now under contract, in order to allay any concerns generated by the controversy over US Testing.

Comment SAP.7 General Comment

The response is acceptable as long as the strategy in DQOs, and the Proposed Data Quality Strategy for Hanford Site Characterization is more clearly reflected.

Comment SAP.18 Section 2.7.2.4, SAP/FSP, Page 26

The other sections mentioned in the disposition should be referenced in the text.

Comment SAP.19 Section 2.7.2.5, SAP/FSP, Page 26

The sections mentioned need to be referenced in the text of this section.

Comment SAP.20 Table 1, SAP/FSP, Page 29

Reference should be made to the sizes of the locations to be sampled, and a summary table and/or text should be included in this section of the Work Plan. The percentage of the area sampled needs to be defined in order to determine if the sampling plan will give statistically valid results.

Comment SAP.21 Table 3, SAP/FSP, Page 37

The response that Level IV Contract Laboratory Program (CLP) analyses will be used for critical samples and Level III EPA standards will be used on other sample need to be explained in the text.

Comment SAP.28 Section 4.4.2.2, SAP/FSP, Page 47

The response is acceptable provided the sections cited are provided in the text in this section.

Comment SAP.34 Task 6, SAP/FSP, Pages 79 to 83

Please specify what changes recommended for task descriptions are intended to be utilized, and justify those changes not accepted.

Comment SAP.35 Section 6.2, SAP/FSP, Page 79

This response needs to be further expanded and clarified. It can generally be understood why the requested information is pending data compilation. and completion of Task 5a. However, a description of why this is deemed necessary, and

the process for developing the survey methods would be helpful. For example, at what point in implementing the work plan will this needed information by provided to Ecology and EPA for review and approval?

Comment SAP.37 Section 6.2.2, SAP/FSP, Page 80

Please see response to disposition of Comment SAP.35.

Comment SAP.38 Section 6.2.3, SAP/FSP, Page 80

This section should be clarified and expanded based on the information provided in the disposition.

**APPENDIX B: QUALITY ASSURANCE PROGRAM PLAN (QAPP)**

Comment QAPP.1 General Comment

The material stated in the response needs to be stated in the text as well. See Comment SAP.6 for further thoughts on this issue.

Comment QAPP.2 General Comment

We recommend much of the referenced material mentioned in the disposition should be included in the text so that the QAPP is a stand-alone document, at least in a summary format.

Comment QAPP.4 Section 3.0, SAP/QAPP, Pages 5 to 6

Although USDOE accepted the comment, clarification as to the definition of "off-site" is needed. The EPA (1987a) document inference of an "off-site" laboratory is a qualified facility other than a field laboratory.

Comment QAPP.7 Section 9.0, SAP/QAPP, Pages 22 to 23

This section should clarify field blanks, trip blanks and equipment blanks generally are prepared in aqueous media, but that silica sand has been approved for soil sampling. For example, silica sand has been used at the Hanford Site, e.g., the 183-H Solar Basins in December of 1989. A consistent framework of usage should be established for various types of blanks at Hanford.

Comment QAPP.10 Appendix A, Glossary, SAP/QAPP, Pages 28 to 30

Please see response to disposition of Comment QAPP.7.

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